

Amendments to the Specification:

Please replace the paragraph appearing on page 24, line 28 to page 25, line 12 with the following amended paragraph:

Although the method can utilize privately generated databases, it also can be practiced using publicly available databases, as exemplified below. Examples of databases include, but are not limited to commercially available genomic and protein databases (e.g., LifeSeq® available from Incyte Genomics, Inc.). Examples of public domain databases containing information that can be processed according to the invention can be accessed at a number of internet locations or Web sites. One such database is located at a Web site called WIT (a world wide web based system to support the curation of functional assignments made to genes, now “ERGO”) maintained by the Argonne National Laboratory of the University of Chicago. Another such database is located at a web site called KEGG (Kyoto Encyclopedia of Genes and Genomes) currently maintained by the Institute for Chemical Research at Kyoto University, Japan. The actual URL (universal resource locator) used to access WIT can change, but has recently been used as <http://wit.mcs.anl.gov/WIT2>. Similarly, the KEGG site <http://www.blast.genome.ad.jp/kegg/kegg2.html> can be used.

Please replace the paragraph appearing on page 78, lines 4 to 6 with the following amended paragraph:

1. Go to WIT (“What Is There”) site on the Internet: At the time of the filing of this application, the WIT site was at the URL, <http://wit.mcs.anl.gov/WIT2/CGI/search.cgi?user=>.

Please replace the paragraph appearing on page 78, lines 18 to 20 with the following amended paragraph:

4. Paste the EC numbers and enzyme names into the KEGG form at:
http://www.blast.genome.ad.jp/kegg-bin/mk_point_html?ec. This will search enzymes in the pathway database by EC numbers.

Please replace the paragraph appearing on page 79, line 1 with the following amended paragraph:

2. <http://wit.integratedgenomics.com/IGwit/CGI/examine.cgi?user=>

Please replace the paragraph appearing on page 79, line 16 with the following amended paragraph:

2. <http://wit.mcsanl.gov/WIT2/CGI/search.cgi?user=>

Please replace the paragraph appearing on page 80, lines 11 to 20 with the following amended paragraph:

7. Go to the SRS data integration page maintained by the European Bioinformatics Institute currently at <http://srs6.ebi.ac.uk/srs6bin/cgi-bin/wgetz?-page+top+-newId>. Use the SRS interface to query a database representing enzymes expressed in humans. For example, the BRENDA database can be downloaded in this way by querying for [Organism] Human|homo sapiens AND [EC number]*. The resulting list of EC numbers is most conveniently saved as a text file, opened in Microsoft Word (or similar word processing program) and processed as in steps 3) through 6) above; save the final text file as human_ec_num.

Please replace the paragraph appearing on page 80, lines 11 to 20 with the following amended paragraph:

To delete known human enzymes, as represented by enzyme commission (EC numbers) from lists of enzyme commission numbers comprising a number of pathogenic microorganisms. In this example, the lists of EC numbers for pathogenic organisms and Homo sapiens were downloaded from the Integrated Genomics website (<http://wit.integratedgenomics.com/GOLD/>), the website for the European Bioinformatics Institute (<http://www.ebi.ac.uk/genomes/>).

Please replace the paragraphs appearing on page 82, lines 5 to 21 with the following amended paragraph:

A list of enzymes organized into metabolic pathways can be obtained from the resulting total target_ec_num_list by pasting this list into the KEGG website <http://www.blast.genome.ad.jp/kegg/kegg2.html>, selecting the organism homo sapiens, selecting Display EC/Compound/Gene(s) NOT found in the search, and clicking execute. ECTA enzymes that cannot be placed in a metabolic pathway by KEGG will be listed apart from those organized into metabolic pathways.

1. Download the list of all existing EC numbers defined by the International Union of Biochemistry and Molecular Biology. For example, the current list can be obtained by going to the nomenclature site of the IUBMC at <http://www.chem.qmw.ac.uk/iubmb/>, and saving a text file containing a list of each of the six enzyme categories, concatenating these files, then removing all characters from the file except the EC numbers using a wordprocessing program such as Microsoft Word.